



‘DisrupTech’ event to highlight bright ideas from Los Alamos

July 14, 2015

LOS ALAMOS, N.M., July 14, 2015—A showcase of disruptive technologies developed by scientists at Los Alamos National Laboratory will take place Thursday, July 16, at the Los Alamos Golf Course Event Center.

“The purpose of our event, called ‘DisrupTech,’ is to expose entrepreneurs, investors, business people, and other leaders to potentially world-changing, disruptive, early-stage technologies developed by Los Alamos scientists and promote the innovation culture at the Laboratory,” said David Pesiri, head of the Laboratory’s Richard P. Feynman Center for Innovation.

“This showcase, and the energy that we anticipate in the interaction between science and industry, is only possible through the partnership and ideas that the NM Angels have brought. We are happy to work with the New Mexico Angels to help get these ideas into the marketplace,” he said.

DisrupTech will feature eight technology presentations in the areas of sustainable fracking, solar cell materials, biofuels, tamper forensics, neutralization of toxic chemicals, biotechnology, water treatment, and industrial process improvement.

“Our goal is to show that the national laboratory approach brings a vital level of creative thinking to address real-world problems,” said Pesiri. “Where we may see an intractable problem, full of complexity and apparent roadblocks, national laboratory scientists use their unrivaled ability to think in new directions, resulting in a complete shift in the way we find answers to important questions.”

“It’s this sort of disruptive thinking that can leapfrog a nation’s security, or a business’s offerings, to the next level,” he said.

DisrupTech is hosted by the Richard P. Feynman Center for Innovation at Los Alamos and the New Mexico Angels, the state’s leading angel investing group. DisrupTech sponsors include the State of New Mexico Economic Development Department and Technology Ventures Corporation as well as the County of Los Alamos, New Mexico Technology Council, Regional Development Corp and Santa Fe Economic Development.

Each of these patent pending technologies will be reviewed and assessed by an expert, private-sector panel in hopes to convey an idea to a possible solution. The scientists that will be presenting and their subjects are as follows:

- **Jim Coons -- Acoustic Produced Water Cleanup:** This project will dramatically reduce the price of water cleanup without requiring the use of chemical additives. Ultrasonic separation and induced coalescence technology will “move only a portion of the produced water mass and break down difficult stable emulsions” while reaching smaller oil droplets than centrifugation. For oil and gas, biofuels, chemical and material industries, the new low-energy approach to oil-water emulsification will be incredibly useful.
- **Steve Yarbrow -- Eliminate Water in Oil and Gas Fracking:** This project will use CO₂ to expand liquid polymers, enabling unique properties that can enhance fracking operations while eliminating water usage. Current fracking operations use millions of gallons of water, a third of which is not reusable. Replacing water with CO₂ expanded polymers will be environmentally benign with reduced cost and optimized performance. This technology will save fracking and oil companies billions of dollars and eliminate environmental burdens produced by water fracking, satisfying regulators.
- **Amanda E. King -- Catalytic Degradation of Chemical Weapon Agents:** This project will use aerobic oxidation catalysts and oxygen can be used to destroy chemical weapon agents. Benefits of this established chemistry are that the catalyst is easily transportable, no caustic chemicals are required, less waste will be created, and human contact time will be substantially reduced. Future options for this technology include development of catalysts that could be deployed in concealed operations by non-specialists. Inspired by the surplus of chemical weapons in Syria, this technology will potentially help military personnel and the Organization for the Prohibition of Chemical Weapons.
- **John George -- NIMBL: Neural Interface for Myo-Bionic Limb:** This project will feature an advanced robotic limb with transformative bio-hybrid technology. The new technology will open up new capabilities for basic research, compelling clinical applications, and applications for bio-hybrid systems.
- **Matt Durham -- Cosmic Plumbing Inspection:** This project will help end catastrophic industrial accidents due to flow-accelerated corrosion. Through the use of imaging with natural radiation -muons- those in the nuclear power industry and petrochemical refineries will be able to rapidly, securely and reliably identify corroding pipes, creating a safer environment for employees. The minimally intrusive assessment method can be useful in a variety of industrial situations and will increase confidence and reduce accidents within the aging national energy infrastructure.
- **Andrew Sutton -- FuSS: Fuels Synthesized from Sugars:** This project anticipates that readily accessible sugars from biomass will provide an economical route to add renewable content to transportation fuels. They have developed a low-carbon, low greenhouse gas route to fuels. Fuel producers and consumers, both civilian and military, will be able to access a sustainable fuel blend that works in an engine. The discovery also allows for the production of fine chemicals through changes in operating conditions to add more value and flexibility at a fraction of the cost to current biomass usage.
- **Igor O. Usov and Milan Sykora -- dUO Solar Cell:** This project's inventors want to turn nuclear waste into low-cost renewable solar energy by creating thin-film solar cells from depleted uranium oxide (DUO). The use of DUO in solar cells is appealing for many reasons, including the need for solutions towards the reduction of the depleted uranium stockpile. DUO films have tunable band-gap, low cost, high stability and light absorptivity, all of which make the dUO Solar Cell technically

and economically viable technology. The DOE, DOD, Nuclear energy industry, PV industry, and NASA are potential end users for the product.

- **David Mascarenas and Eric Flynn -- Tamper Forensics through Structural Fingerprinting:** This project will create tamper-evidence technology that can inspect anything, anywhere at any time. Current tamper evidence technology requires use of tags that are local, obvious, and targetable. The new proposed technology will use ultrasonic measurements that will allow tamper forensics teams to see even the smallest changes. Any attempted tampering will be noticed. A transducer generates an ultrasonic tone measuring the vibrations on the surface and detecting where tampering has occurred. The technology will reduce waste, since the entire structure that is measured serves as a “bar code.”

Tickets to DisrupTech can be purchased at www.LANLDisrupTech.com.

About the New Mexico Angels

The New Mexico Angels is an accredited angel group focused on investing in early-stage companies and has invested more than \$8 million since 1999. Our mission is to provide members with well-vetted investment opportunities with outstanding financial returns, while accelerating promising companies to market leadership.

Los Alamos National Laboratory

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